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AUTHOR Braun, Bonnie; Wilson, Elaine
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ABSTRACT

The paper presents background information, rationale, description, and evaluation of an energy education program used with preschool and kindergarten children and their families. The objective is to describe the use of combined concepts of education, economics, and early childhood in developing a value conscious approach to energy education. The paper is divided into four parts. Part I emphasizes consumer education as a solution to the energy problem, examining educational decisions concerning individual benefits of energy education, the target audience, and effective methods of teaching this topic to young children. It also describes the program, "Energy Education: The MIZER Series," a home and school based delivery of information using a value conscious approach. Part II discusses the program in relation to the process of value development, coordinated support systems of home and school, and early childhood learning styles. Part III describes the program evaluation, which tested impact, family involvement, and level of satisfaction. Findings showed parental increase of energy awareness and a smaller amount of behavioral change, involvement of older siblings, and a high level of satisfaction. Part IV offers conclusions and a recommendation. Conclusions are that reinforcing the link between school and home based learning is an effective technique; that families moved from energy awareness to conservation; and that the model may be useful for other topics. The recommendation is that educators further explore and evaluate the model using a variety of topics, age groups, and audiences. (CK)

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A VALUE CONSCIOUS APPROACH TO ENERGY EDUCATION

By Bonnie Braun
Elaine Wilson

Family Resource Management Specialists
Home Economics Cooperative Extension
338 Home Economics West
Oklahoma State University
Stillwater, OK 74074

SP 012 036

A VALUE CONSCIOUS APPROACH TO ENERGY EDUCATION

This paper was written to describe an energy education program for young children and their families that was developed, tested and implemented in Oklahoma by an interdisciplinary team of home economists. The paper combines concepts of education, economics and early childhood to develop a rationale for a value conscious approach to energy education.

CONSUMER EDUCATION: A SOLUTION TO THE ENERGY DILEMMA

The recent general awareness of the limited nature of energy resources and the need to determine public policy in response to the resulting energy dilemma has caused decision makers in government, business, and education to seek solutions that will enable an energy dependent nation of consumers to cope with decreasing supplies and rising prices of critical resources. One proposed solution is to educate consumers to be efficient energy users by increasing both their understanding of energy as a limited resource and their competency in using energy.

Education is viewed as a process that can inform and motivate people to change their energy consumption. The National Energy Act (NEA) of October 1978 represents a public policy decision with an educational component. According to Energy Secretary Schlesinger (14), the NEA created a framework to increase efficiency and reduce energy demand.

Educational Decisions

Those persons in government, utilities and other systems responsible for energy education must make a number of decisions. First, we must determine what the benefits of energy education are to individuals and to the nation as a whole. Energy education is a type of consumer education. Part of the rationale for consumer education is that it represents an investment in human capital. Through education, human resources are developed. According to Shultz (12), human resources include all of the physical, biological, psychological and cultural characteristics of individuals. These characteristics account for values that affect preferences and satisfactions. Benefits to individual consumers and society from this type of investment will vary. Projected benefits from energy education include: reduced energy consumption, control of rapidly rising prices, an informed nation of consumers. Theoretically, energy education that allows consumers to clarify values which influence consumption could result in a reordering of priorities and possible changes in life styles. Therefore, a decision to invest in human resources has implications for energy consumption.

Second, if decision makers ascertain that the benefits of consumer education as a method of increasing the human resources necessary to become efficient energy consumers outweighs the costs, then we must decide who will be educated.

Children are a potential target audience because the development of the values, attitudes and behaviors which facilitate energy use begins in early childhood. Energy is also an appropriate topic for young children because wise energy use will be a future responsibility for today's children. Thus, a decision to educate children has immediate and future benefits and may well be an efficient method of solving the energy dilemma.

However, a third decision must be made. Educators must select the most effective method of delivery of energy education to young children. The initial choice may be the use of a centralized approach, i.e., education in early childhood classrooms. Teachers would incorporate energy concepts into their curriculum. An alternative approach combines home- with school-based delivery. This method capitalizes on the family as educator. From an economic standpoint, this method should maximize the investment in human capital development because the knowledge and skills of family members are increased at the same time as are those of young children. Another advantage of the dual investment is that the role of the family as primary educator is strengthened, not threatened. If family members are not included in a child's educational experience, the potential exists for conflicts in the values and/or behaviors of the child and other family members.

A Model for Delivery

"Energy Education: The MIZER Series" represents a value conscious approach to energy education that combines home- and school-based delivery of information. MIZER, an ageless, sexless character, helps children and their families achieve the ultimate goal of the program: efficient energy use. In the home-based portion, MIZER sends a series of six letters, a checklist and evaluation to the child. The stories, songs, and games are aimed at integrating all family members into the learning experiences. The school-based portion contains a curriculum guide developed to accompany the letters when used in connection with early childhood programs. Included are ready-to-use lesson plans, activities and resources needed to implement energy education for young children.

The "Series," theoretical concepts which influenced its development and results of the testing of the approach will be further explained in the rest of the paper.

ENERGY EDUCATION FOR YOUNG CHILDREN

The manner in which one treats a resource such as energy: whether abusive, distructive and greedy or respectfully, carefully and efficiently, is a behavioral demonstration of internalized values. Educators, have utilized Bloom's (1) approach to educational objectives because the acquisition of knowledge, attitudes, and skills are interdependent processes. To reach the goal of efficient energy use, consumer educators have come to grips with the fact that the behavioral application of knowledge and abilities gained in the classroom depends upon basic attitudes and values.

In the MIZER Series each activity was designed to meet a specific content, skill and attitudinal objective. Activities were sequenced and repeated so that growth in one domain can support the child's growth in another domain.

The Process of Value Development

Values clarification in early childhood education is especially challenging because the development of social values is at a beginning stage and is closely tied to the child's family life. Because the family provides the child's initial and continuing experience in social living, one of its primary functions is the transmission of social values.

There are many explanations of how the family transmits values. Social learning theory suggests that the child duplicates the behavior of the parent either because of the child's internal love for the parent (9) or because of the external reinforcement the child received for this behavior (7). Psychoanalytic theory suggests that the child learns prohibition as a part of superego development (4) and anxiety over anticipated loss of love (12). In addition to these explanations Kagan (5) suggested that children adopt the behavior of aggresive or threatening models. Children vicariously experience positive or negative feelings associated with their parent's success or failure. Piaget (10) has explained that various levels of immitative ability correspond to stages of cognitive development. Kolberg (6) linked Piaget's theory of cognitive development to moral development and described the young child's respect for authority as unilateral and absolute. The young child views adult behavioral models as sacred and unchangeable.

The child's family experience is, to the child, universal and correct. Simon and others (13) have strongly recommended that educators respect differing value systems and facilitate individual value development and clarification rather than attempt to impose specific values upon the child.

The focal character in the energy series, MIZER, was presented as a friend who helps children become aware of energy and the trade-offs involved in deciding how to use energy. MIZER was not an authority who told children about energy and how to use it. The focus is on MIZER's friendliness and the children's ideas.

Coordinated Support Systems

Early childhood educators have reported that children enter educational programs with concepts and skills closely tied to their self-concept and family orientation. Group experiences such as nursery school, day care, and kindergarten broaden children's social contacts. The child meets teachers and other children whose ideas may differ from or reinforce those that the child considers to be universally correct. This situation has the potential of either threatening the child's self-concept and family support or building on that background.

From theoretical explanations and practical experiences it was concluded that energy education for young children must be carefully linked to the child's

family value system. If the home and the school present contrasting values the child is caught in a conflict. Such a conflict would undermine the effectiveness of both the independent and cooperative efforts of the home and school. Early school experiences should present a positive opportunity to deal with differences and provide a sound basis for social development.

The mechanism for coordinating the school-based curriculum with the home was a series of letters from MIZER that the child took home. These letters stimulated the necessary communication between the home and school. The letters suggested family activities that extended and reinforced the learning experiences conducted at school. Thus, the parents were aware of the content and purpose of the curriculum and responded by becoming involved in the school program. The letters precipitated an increase in parent comments and questions about energy education. This lead to values clarification between teachers and parents.

An unexpected benefit of the letters was the involvement of siblings. As brothers and sisters read the letters, they became interested in the activities. Their involvement strengthened the family's role in energy education.

Learning Styles

Energy education is appropriate for early childhood curriculum because of the young child's natural curiosity and developing social awareness. Young children are egocentric and learn best when concepts, attitudes and skills are presented in relationship to their experience. Young children are energetic and learn best when they are actively involved in the process. Passive learning is not their style; they must participate and contribute.

In the MIZER Series the energy theme was introduced through activities that helped the children become aware of energy through their own body movement. This meant that the children viewed energy in terms of their own experiences and were actively involved in the learning process. The energy curriculum utilized equipment and experiences that are typical of developmental programs. The only addition was the emphasis on energy awareness and the discovery of trade-offs. Therefore, the curriculum was appropriate for young children and provided an efficient use of the school's resources.

EVALUATION

Field testing involved 260 families with evaluation based on 117 parents' responses to a written questionnaire. The return rate was 45 percent. The home-based portion, letters from MIZER, was used alone with 200 families. The letters were sent directly to the home from Oklahoma State University Cooperative Extension Centers in 10 counties. Sixty families participated in both parts of the Series, with 40 children enrolled in public school kindergartens and 20 children in a day care center using the MIZER Series curriculum. The letters from MIZER were sent home from school with the children.

Impact of the Series

Parents were asked if they felt that the Series had increased their energy awareness. Most felt that it had but the rates varied by groups: 83 percent for those receiving letters only, 80 percent for the kindergarten, and 70 percent for the day care families.

The rate of the behavioral change was lower and had a broader range. From 80 to 59 percent of the parents felt that they were using energy more carefully as a result of the Series.

Which Family Members Participated

Reported family involvement was 132 children, 92 mothers and 37 fathers. The number of children was twice that anticipated because of the involvement of older brothers and sisters. Listed as "other" participants were friends, neighbors, grandparents and classes or scout troops of older siblings. These findings suggested that the Series was appropriate for older children as well as the intended audience. Parent comments revealed that their involvement enhanced the family's role and interaction patterns.

Satisfaction With the Series

To determine whether or not families like this educational model, parents were asked if they wanted to receive more letters. The highest rate, 75 percent, requested a similar series for older children, a reflection of the Series' appropriateness for later grades. More letters on energy were requested by 66 percent of the families and 50 percent requested a similar series on other topics. Thus, the Series met the families' needs for energy education and could be used to meet families' needs for education in other content areas and with older children.

CLOSING THOUGHTS

Results from the testing of the Series indicate that reinforcing the link between school- and home-based learning is an effective technique. The data collected supports the conclusion that families were moved along a continuum from awareness to adoption of energy information. Thus, for educators concerned with changes in behavior and/or attitude, this model of delivery may be an effective technique to use for a variety of additional topics where family involvement is desired. Consumer educators need to further explore and evaluate this model of delivery for a variety of topics, age groups and audiences. Currently, the authors are assessing the impact of the technique on other audiences in Headstart centers, early childhood education programs, youth organizations and Cooperative Extension programs.

The MIZER Series grew out of a need for energy education for young children and their families. It was created by an interdisciplinary team of home economists: one from the Family Relations and Child Development department; one from the Housing, Design and Consumer Resources department. One repre-

sented resident instruction as lead teacher of the child development laboratory at OSU; the other represented Cooperative Extension as Family Resource Management Specialist. Together they have integrated theory and practice from two subject matter areas to solve a problem. Therein lies one of the strengths of this approach to energy education. Others with a similar educational problem should consider the advantages of an interdisciplinary team approach to creation of educational methods and materials.

TABLE 1

Impact of the MIZER Series

Group	Families Participating	Evaluations Returned	Increased Awareness	Changed Behavior
Letters only	200	75	83%	80%
Kindergarten	40	25	80%	64%
Day Care Centers	20	17	70%	59%
Totals	260	117 (45%)		

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